

the estimate of Captain Riggs, that there are a thousand barrels in one of the schools, shows how exceedingly abundant they must be. The name "frigate mackerel", used in Bermuda, would seem to be the best name for use in this country, since the fish resemble the mackerel more than they do the bonito or tunny.

Capt. N. E. Atwood, of Provincetown, Mass., the veteran fisherman-ichthyologist, has examined the specimens, and is satisfied that they belong to the same species with a fish which he found abundant in the Azores in 1840, when, led by the reports of Cape Cod whalers, he went to these islands in search of mackerel, the mackerel-fishing being poor at home. No mackerel were found except the frigate mackerel referred to in this note.

NOTACANTHUS PHASGANORUS, A NEW SPECIES OF NOTACANTHIDÆ FROM THE GRAND BANKS OF NEWFOUNDLAND.

By G. BROWN GOODE.

The United States Fish Commission has received from the schooner "Gatherer," of Gloucester, Captain Briggs Gilpatrick, a remarkable fish taken from the stomach of a ground-shark, *Somniosus brevipinnis*, on the Grand Bank of Newfoundland.

Notacanthus, Bloch.

Notacanthus, BLOCH.

Acanthouotus, BLOCH, Ichthyologia, xii, 1797, p. 113, pl. ccccxxxi. (No description separate from that of species *A. nasus*.)—SCHNEIDER, Bloch, Syst. Ichth. 1801, p. 390, pl. xlvi.

Notacanthus, LACÉPÈDE, Hist. Nat. Poiss. 1804.

Head and body much compressed, the body elongate, produced in a long pointed tail, shaped like that of *Macrurus* or *Fierasfer*. Snout produced, obtuse, rounded at its tip. The cleft of the mouth inferior. (The specimen is mutilated, but the maxillaries do not appear to be protractile. Dorsal fin almost rudimentary, consisting of very short, flexible spines, remote from each other and not connected by a membrane. Anal fin very long; its origin close behind the vent, which is situated nearly midway of the length of the body; its anterior portion is composed of separate flexible spines, without membrane, resembling those of the dorsal; these gradually lengthen, grading into the articulated branched rays. No caudal. Ventrals broad, with broad, peduncle-like bases, closely contiguous, separated only by a slight groove at the base, situated near the vent. Teeth acicular, in single rows upon maxillaries, in a double row upon mandibulars, villiform and in a double row upon the palatines. Vomerine teeth not apparent (?). Scales very numerous, of moderate size, round, thin, flexible. Branchiostegals about 8; gills 4.

Notacanthus phasganorus, new species.

The body is much compressed, its greatest width slightly more than one-third the height of the body at the vent, its width at the tail from

one-fourth to one-fifth of its height, and about one-thirteenth of the length of the head. Its length is about one-eighth its height at the vent.

The scales are round, thin, flexible, very small upon the head, not wider than the diameter of one of the dorsal spines, but upon the anterior half of the body they are about three times as large, decreasing in size upon the posterior half, until upon the tail they are smaller than upon the head. The number of scales in the lateral line is not far from 400, but in the partially digested specimen before me it is impossible to make an exact enumeration. The number between the lateral line and the dorsal fin is about 20, between the lateral line and the anal fin about 36. The head is covered in every part, even the lips, with small scales. There are about 40 between the eye and the end of the opercular flap. The scales are deeply imbedded, and in life are probably hidden beneath a slimy epidermis.

The length of the head is contained about seven and one-third times in that of the body. Its bones are all flexible, and their outlines are invisible without dissection, the whole being covered with a leathery skin protected by scales. The width of the interorbital space appears to be (in the mutilated head) somewhat greater than the length of snout, and about one-fourth the length of the head. The diameter of the orbit appears to be about one-half the width of the interorbital space. The length of the postorbital portion of the head is nearly three times that of the snout. The length of the mandibular bone slightly exceeds twice the diameter of the eye; that of the upper jaw is considerably greater. The teeth in the upper jaw are blunt, acicular, set side by side like the teeth of a comb, about 32 on each side. In the lower jaw they are shorter, slenderer, and in double rows. Villiform teeth upon the palatines.

The dorsal fin begins at a distance from the snout not far from two and three-fourth times the length of the head, and nearly over the one hundred and tenth scale of the lateral line. It consists of ten low, widely separated spines, unconnected by any membrane. The distance between the first and tenth spine is nearly double the length of the head.

The spines from the fourth to the ninth are about equidistant, while the other interspaces are shorter.

The distance from the snout to the anal fin is equal to about four times the length of the head. The anterior spinous portion of the anal resembles the dorsal and is devoid of connecting membrane. The membrane is also absent from the posterior half of the fin, but may possibly have been destroyed. The anal rays extend to the tip of the elongate tail and number about 130, the number of spines being 19. The anal begins immediately behind the vent, and its length of base is slightly less than half that of the body—less by a length about equal to the distance from the angle of the mouth to the gill-opening.

The pectoral fin is placed at a distance behind the gill-opening about equal to the width of its own base. Its length is at least double this

distance—how much more cannot be determined, but the fin is evidently short and rounded in contour, the upper rays longest. Its base is stout-peduncular, and thickly covered with scales.

The distance of the ventrals from the snout is equal to that of the dorsal, though its insertion is slightly in advance of that of the dorsal. The two ventrals are closely adjacent, separated by a narrow groove, broad, with peduncle-like bases, thickly covered with scales. They are provided with two spines and eight or nine (as nearly as the specimen will permit determination) rays.

D. X; A. XIX (130); C. 0; P. (17); V. II, 8-9.

<i>Measurements.</i>		Millimeters.
Extreme length		963
Body:		
Height at vent		110
Greatest width		(40)
Head:		
Greatest length		132
Width of interorbital area		(34)
Length of snout		30
Length of postorbital portion (measured diagonally)		87
Length of upper jaw		40
Length of mandible		36
Diameter of orbit		17
Dorsal:		
Distance from snout		350
Length of base		215
Length of first spine		2
Length of last spine		7
Distance between first and second spines		7
Distance between second and third spines		19
Distance between third and fourth spines		22
Distance between fourth and fifth, fifth and sixth, sixth and seventh, seventh and eighth, and eighth and ninth spines		25
Distance between ninth and tenth spines		21
Anal:		
Distance from snout		437
Length of base		525
Height at first spine		2
Pectoral:		
Distance from snout		150
Length		(40)
Ventral:		
Distance from snout		350
Length		20+